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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,516	10/04/2000	HyounG Gon Kim	REF/KIM/174	1338
7590	06/23/2004		EXAMINER CARTER, AARON W	
Bacon & Thomas 4th Floor 625 Slaters Lane Alexandria, VA 22314-1176			ART UNIT 2625	
DATE MAILED: 06/23/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/623,516

Applicant(s)

KIM ET AL.

Examiner

Aaron W Carter

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-13 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to papers filed on April 5, 2004.

Response to Arguments

2. Applicant's arguments filed April 5, 2004 have been fully considered but they are not persuasive.
3. Applicant's argue that Onda does not disclose or fairly suggest a method of determining stereo disparity in which the similarity measure is calculated based on direct comparison of pixel intensities in a reference window, i.e., on a "matching pixel count" or "pixels in the reference window which are similar in intensity" (instead, the method of Onda compares quantized values of pixel intensities, which is not the same as comparing the pixel intensities themselves).

Examiner disagrees, the limitation of claim 1 states that "number of pixels in the reference window which are *similar* in intensity to corresponding pixels in a search window". Onda does quantize pixels based on intensity and then determines a similarity measure between the quantized pixels, the comparison is still based on pixels with similar intensities and therefore meets the limitation of the claim.

4. Applicants argue that Onda does not discloses or fairly suggest a method off determining stereo disparity in which the reference window used for the similarity measure includes a set of
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pixels centered on the a reference pixel (the reference window of Onda has an even length and therefore no center reference pixel).

Examiner disagrees, Onda discloses in column 20, lines 25-29 that the window size maybe varied flexibly. This includes a window of odd length since the overlapping process of Onda is performed in intervals of $N/2$ when each of the 1-D windows has a size *equivalent* to N pixels (column 6, lines 47-48).

5. Applicants argue that Onda does not discloses or fairly suggest a method off determining stereo disparity in which the displacement of the search window having the largest similarity is taken as the disparity (instead, the method of Onda uses the similarity to obtain a histogram, and then calculates the peaks of the histogram to obtain the overall disparity).

Examiner disagrees, the invention of Onda comprises the step of “determining a displacement between the reference window and a search window which yields a largest similarity measure as the stereo disparity for the reference pixel”, as disclosed in column 7, lines 36-45. Regardless of what happens later on in Onda’s invention, the disparity is still found for each window which is based on the highest similarity measure.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,125,198 to Onda.

8. As to claim 1, Onda discloses a method of determining a stereo disparity between a reference image and a search image for a reference pixel in the reference image (Abstract, lines 15-22 and Fig. 7), said method comprising the steps of:

(a) calculating a similarity measure between a reference window including a set of pixels centering on the reference pixel and each of a group of search windows in the search image which is of a same shape with the reference window and displaced from the reference window within a predetermined search range (column 6, lines 39-49), wherein a matching pixel count, which is the number of pixels in the reference window which are similar in intensity to corresponding pixels in a search window, is used as the similarity measure between the reference window and said search window (column 7, lines 26-39, wherein the matching pixel count corresponds to Σ_{all} and wherein P and Z are values determined based on pixel intensity); and

(b) determining a displacement between the reference window and a search window which yields a largest similarity measure as the stereo disparity for the reference pixel (column 7, lines 39-45).

Allowable Subject Matter

9. Claims 3-13 are allowed.

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10. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W Carter whose telephone number is (703) 306-4060. The examiner can normally be reached on 7am - 3:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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